

## IEEE SWITCHGEAR COMMITTEE CORRESPONDENCE

Minutes: Working Group on Revision of Fuse Standards-C37.41, High-Voltage Fuse Subcommittee  
Place: On-line  
Date: April 21<sup>st</sup>, 2020  
Chair: Sterlin Cochran  
Secretary: John Leach

### Members Present (19)

Joshua Arlund	Maclean Power Systems
Brian Betts	Mersen
Glenn Borchardt	S & C
Chris Borck	Eaton
Sterlin Cochran	Oak & Shield LLC (Chair)
Jeramie Cooper	Eaton
Rich Frye	Eaton
Gary Haynes	ABB Inc.
Hemanth Jala	S&C Electric Co.
Travis Johnson	Xcel Energy
John Leach	Consultant (V-Chair/Secretary)
Pete Marzec	S&C Electric Co.
Chris Morton	PowerTech Labs
Caryn Riley	Georgia Tech/NEETRAC
Jon Spencer	Utility Solutions
Bill Walter	We-Energies
Jim Wenzel	Eaton
Robert Wolf	Hubbell Power Systems
Danish Zia	UL LLC

### Members missing (2)

Pat Kula	Hubbell Power Systems
Jean Mark Torres	G & W Electric

### Guests (3)

Paul Found	BC Hydro
Robert Stromaglia	UL LLC
Charles Worthington	Hubbell power Systems

### **1. Meeting Call to Order**

The meeting was called to order on Wednesday April 21<sup>st</sup> at 8:00 a.m. (CDS Time)

### **2. Approval of agenda**

The agenda was approved as circulated (proposed Caryn Riley, seconded Jim Wenzel).

### **3. Attendee introductions**

A role call was made to confirm who was present. It was pointed out that Emily Witcher had resigned after a change in employment, and that others would be eligible for membership after attending two consecutive meetings as a guest.

#### 4. Announcement of Essential Patent Claims

John observed that in the future this will not be need as it is incorporated into the registration process. Because for this on-line meeting it was possible for someone to attend without registration, the request for knowledge of essential patent claims was made. There was no response, so the meeting proceeded.

#### 5. Approval of Wednesday October 7th 2020 minutes

The October minutes were reviewed and approved unanimously (proposed Hemanth Jala, seconded Chris Borck)

#### 6. Report from the Chair

Sterlin welcomed everyone and explained that the intent of the meeting was to move through the latest draft of the document, covering those sections for which input had been received (Clauses 1- 5) and then to discuss any other points raised that needed discussion.

#### 7. Report and Discussion of Relevant IEC activities – John Leach

John stated that there had been no activities relevant to the WG and a full report would be given at the Subcommittee meeting later this afternoon.

#### 9. Revision of C37.41/42 – review of second draft

- 1) John Leach had added in comments received from the last meeting to the draft circulated after that meeting. This document was sent out a week before this meeting and this was the document examined, starting from the beginning. The changes were approved or amended as reported below (main issues only).
- 2) There was a question as to whether we should expand the reference to coordination being maintained with IEC, to explain how this is done – John Leach agreed to review this (it has been through common membership of Leach and Cochran).
- 3) Comparison with IEC. 1.3.2 is no longer accurate due to the expansion of Test Series 4. **Cochran** will look at this before the next meeting.
- 4) Interchangeability requirements 1.6. It was agreed reference to K&T links should be made. Also given the relevance of cutout interchangeability requirements, something on this (including cross-reference to paragraphs already in the document) should be included. This task will be taken on by **Cochran, Cooper** and **Worthington** before the next meeting.
- 5) There was some discussion of definitions, particularly related to “switches” and “disconnecting” devices. A request was made for someone relatively new in our industry to look at our definitions critically, as many of us know what is meant and do not recognize the difficulty for others with less experience. **Brian Betts** volunteered to do this.
- 6) Ratings. There was concern that while disconnecting devices were in the scope and the information on testing is in Annex A, there was nothing the ratings subclause. A proposal was made to address this and a first pass made by **Leach** over the coffee break. It was reviewed by the members and generally accepted. It will be confirmed after further review.
- 7) In 9.2.2, Table 14, was discussed. It was agreed that the table should be labeled as for expulsion fuses that use replaceable links and that Class A fuses that do not use

replaceable links would be covered by a paragraph positioned before the table rather than in 9.2.3.2.3 “test series 4”. No one was aware of any such devices presently being made, although it was believed they did once exist and could, in principle, exist again!

- 8) There was much discussion regarding identifying how many fuseholders and fuse supports were required to conduct tests in accordance with table 14, and attempts were made to clarify this. It was decided to simply say, in effect, that you test 4.1, 4.2, and 5 on one fuse holder and 4.3, 4.4, and 5 on a second fuse holder. *[One problem arises because the testing for Series 4 assumes that there will be two homogeneous series between low current ratings and 100A, with the auxiliary tube changing between 50T and 65K. This then requires two series 5 tests (with 2 samples), one on a 6K and the other on a 65K (the minimum ratings in the two homogeneous series). However, it is conceivable that a design could exist where the split was not at 50/65 and three series would have to be tested at series 4 (but not series 5?) or there could just be one series. As an example, consider a homogeneous series 6k to 65T, with only one series 5 required. However, by our test table, two “sets” of series 4 would still be required, 4.3 and 4.4 with 50T and 6K and series 4.1 and 4.2 with 65T and 65K. The 65K does not need a series 5 test as it is the same homogeneous series as the 6K. This situation is included in the present standard, and a proposal for wording to cover this has been included in the next draft. It is also possible (if unlikely) that more than two homogeneous series could exist between 6K and 100T – perhaps we should consider this also – see proposal in the next draft -JGL]*
- 9) John Leach stated that within a week or so he will prepare a new draft for members to use for their review. It will include changes proposed during the meeting as well as all of the proposals made up to the meeting. This will enable all members to review the sections they agreed to review at the last meeting, including any changes suggested since that meeting. The review list is shown below:

Joshua Arlund	12, 13, 14, 15
Brian Betts	9, Annex J, 3
Glenn Borchardt	
Chris Borck	9, 12, 13
Sterlin Cochran	1, 2, 3, Annex J, Annex K, 1.3.2, 1.6
Jeramie Cooper	18, 1.6
Rich Frye	7, 10, 11
Gary Haynes	4, 5, 6
Hemanth Jala	14, 15
Travis Johnson	20, 21, 22, Annex G, Annex H
Pat Kula	
John Leach	1, 2, 3
Pete Marzec	8, 16, 17, 19
Chris Morton	9, 10, 11, 12, 13
Caryn Riley	18, Annex B, C, D, E, F
Jon Spencer	Annex A, Annex G, Annex H
Jean Mark Torres	
Bill Walter	20, 21, 22
Jim Wenzel	4, 5, 9, Annex I
Robert Wolf	8, 9, 12, 13
Charles Worthington	1.6
Danish Zia	16, 17, 19

Please feel free to review other sections than “your” section. New tasks taken on at this meeting are shown in red.

**9. Old Business**

None

**10. New Business**

None

**11. Next meeting**

Fall 2021 (October 10-14) Peppermill Resort, Reno, NV

**12. Adjournment:** 12:00 October 7, 2020

Respectfully Submitted,  
John Leach, Secretary (04/27/21)